

REMARKS

Applicants respectfully traverse the rejections in the outstanding Office Action, and request that it be withdrawn in view of these Remarks. Amendments have been made in claims 1 and 2 to specify that Applicant ascertains the assay reagent replenishment requirements for a specific daily period by considering the assay demand pattern only for that same specific daily period in order to distinguish over the prior art. Claims 6-7 are canceled as their limitations have been added to claims 1 and 2. Claim 8 has been rewritten in independent form including all of the limitations of the base claim.

Claim Rejections – 35 USC §102/103

Claims 1-3 are rejected under 35 USC 102(e) as being anticipated by, or in the alternative, under 35 USC 103(a) as being obvious over Balisky (U. S. 6,521,112). The Examiner cites Balisky for disclosing a method to replenish a chemical bath based on historical experience. An LCU is employed to condense sensor readings into values “over selected time periods”.

The present invention is based on Applicant's discovery that in the environment of clinical analysis, the assay demand load pattern on, for example, Monday, may be best determined from the demand load pattern on the previous Monday's. In contrast, within clinical analysis, the forecast assay demand load pattern is generally calculated as a running average over a full weekly period.

Similar to the prior art practice in clinical analysis, Balisky averages several of his replenishment factors over some period of time and does not disclose using the historical experience for a defined specific period of time (like Monday's) to

forecast future replenishment requirements for that same defined specific period of time. Thus Balisky cannot be said to anticipate Applicant's invention.

In making an obviousness rejection under 35 USC 103(a), the Examiner is required to explain why it would have been obvious to monitor consumption broken into seven separate daily twenty-four hour time periods and to forecast replenishment needs for each of said seven separate daily twenty-four hour time periods using historical consumption from only the corresponding seven separate daily twenty-four hour time periods.

Balisky discloses using an LCU to condense sensor readings into values "over selected time periods" and the Examiner asserts that this inherently allows for the system to allow replenishment based upon specified time periods. Applicant respectfully disagrees. Balisky's LCU is used to monitor and report a variety of parameters (temperature, level, pH, voltage, current, pressure and flow) relating to the operating characteristics (not plating constituent levels) of a copper plating bath enabling "internal system diagnosis to maintain a high degree of reliability" (Col. 2, line 63-Col. 3, line 31, Col. 10, lines 54-58, taken with Col. 11, lines 36-49). The objective is to keep the flow sensor linear by limiting flow rate, to deliver a pre-determined volume rather than a variable one, and to verify a delivered volume rather than assuming delivery (Col. 3, lines 22-31).

Balisky's system "replenishes process constituents as they are actually consumed (Col. 3, lines 56-58) by replenishing "user-defined volumes at a frequency controlled by the time required for a pacing signal to reach a trip point" (Col. 4, lines 23-28). These paced signal units are accumulated in real time (Col. 4, lines 41-43) based on measurements of (Col. 3, line 62 to Col. 4, line 4):

- Analysis result
- Amp-minutes
- Production

- Process time
- Elapsed time
- Operator request

Thus, Balisky's LCU monitors plating bath to ensure reliability and is not involved whatsoever in making replenishment calculations so that there is no basis for an assertion that the LCU enables the system to allow replenishment based upon specified time periods.

As previously mentioned, in making an obviousness rejection under 35 USC 103(a), MPEP 706.02(j) requires that the Examiner:

"set forth (1) the difference or differences in the claim over the applied reference(s), (2) the proposed modification of the applied reference(s), and (3) an explanation why such modification would be obvious."

As explained above, Balisky replenishes constituents as they are consumed while Applicant basically replenishes reagents on a twenty-four hour basis by calculating future replenishment needs for separate future daily twenty-four hour time periods on the basis of historical consumption for only the same daily twenty-four hour time periods. If one were to modify Balisky's (semi-continuous) replenishment process to emulate Applicant's process, it is quite possible that a constituent in Balisky's system could become too low or depleted (during a twenty-four hour period) thereby defeating the intent of Balisky. Since modifying Balisky's system would be counter-productive, it is not possible to provide an explanation why such a modification would be desirable, much less obvious.

In fact, replenishing on a daily or weekly basis is in fact exactly what Balisky is teaching against. Balisky specifically teaches replenishing process

constituents as they are consumed (Col. 3, lines 57-58) as a function of the time required for a pacing signal to reach a trip point (Col. 4, lines 23-28). For these reasons, Applicant believes the obviousness rejection is unfounded and respectfully requests that the rejection of claims 1-3 over Balisky be withdrawn.

Claim Rejections – 35 USC §103

Claims 3-6 and 7 are rejected under 35 USC 103(a) as being unpatentable over Balisky (U. S. 6,521,112). The Examiner recognizes that Balisky does not disclose averaging readings over specific daily time periods. However the Examiner states that it would be obvious to monitor and replenish an electroplating system daily or weekly.

As explained above, replenishing on a daily or weekly basis is in fact exactly what Balisky is teaching against. Balisky specifically teaches replenishing process constituents as they are consumed (Col. 3, lines 57-58) as a function of the time required for a pacing signal to reach a trip point (Col. 4, lines 23-28). Thus there is no basis for an obviousness rejection and it is respectfully requested that this rejection be withdrawn.

Claims 6 and 7 have been canceled as their limitations are now found in claims 1 and 2. Claims 3-5 further define and limit claim 1; in view of the above explanation of why claim 1 contains patentable material, it is believed that claims 3-5 also contain patentable material.

Allowable Subject Matter

Claim 8 is indicated as being allowable if rewritten to overcome a rejection over 35 USC, 2nd paragraph (indicated as set forth in the Office Action) and

including the limitations of the base claim and any intervening claims. Since there is no rejection over 35 USC, 2nd paragraph in the present Office Action, it is believed that the amendments made to claim 8 to overcome the rejection over 35 USC, 2nd paragraph in the previous Office Action were sufficient. Thus claim 8 has been amended in independent form including the limitations of base claim 1.

Applicant believes that this application contains patentable subject matter and that the foregoing explanation provides a basis for favorable consideration and allowance of all claims; such allowance is respectfully requested. If any matter needs to be resolved before allowance, the Examiner is encouraged to call Applicant's representative at the number provided below.

Respectfully submitted,



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